clearly been developed with the object of producing this volume.

The trinominal system of nomenclature, the principles of which are clearly explained in the introduction, is followed by the authors as by most naturalists who have made a special study of geographical distribution. At the same time, new subspecies or geographical races have only been created when plenty of material was available. The authors have wisely deemed it "preferable that a race should continue undetermined rather than the racial characters should be wrongly described or a new race erected on insufficient grounds."

The exigencies of space prevent any detailed discussion or description of the work, but it must be mentioned that the remarkable *Euschemon* is considered as a "Skipper" (Hesperidæ) and not as a moth. This conclusion appears to the present writer to be entirely sound, although the primary division of Lepidoptera into "butterflies" and "moths" is, of course, artificial and merely a matter of convenience.

In addition to the description of the species and the groups to which they belong, occupying nearly the whole of the volume, there is an introductory section with a brief historical account of Australian work and an excellent general description of the Lepidoptera, together with the anatomical features relied upon by the systematist. A concluding section, with "Notes upon Collecting and Collections," complete the work by rendering it a sufficient guide to the beginner.

The keen Australian naturalist is now provided with a foundation upon which to build. The present work will tell him what he is dealing with, and will indicate much of the work that remains to be done. Blank records of food-plants and of larval and pupal stages will suggest, to those interested in breeding, one of the most fascinating of all inquiries. We may hope that the bionomic problems presented by the Australian Lepidoptera, as yet scarcely attacked at all, will now receive attention; that geographical variation, so specially studied by the authors, will forthwith be advanced by the efforts of a band of new observers.

The naturalist living in the cooler parts of Australia need not be discouraged by comparing his species with the grander forms of the tropical north. These latter are for the most part identical with or very closely allied to Papuan species, while his own less magnificent butterflies are characteristic of the great southern continent. At the same time, the resident in northern Queensland has the opportunity of solving complex problems of tropical life with its elaborate inter-relationships—an opportunity of which Mr. F. P. Dodd has taken such great advantage. With the present work as a guide we may look forward to a rapid advance along many lines in our knowledge of the butterflies of Australia.

E. B. P.

PHYSICAL ANTHROPOLOGY.

Lehrbuch der Anthropologie in Systematischer Darstellung. Mit besonderer Berücksichtigung der anthropologischen Methoden für studierende Aerzte und Forschungsreisende. Von Prof. R. Martin. Pp. xvi+1181. (Jena: G. Fischer, 1914.) Price 35 marks.

IN these later years the Anthropological Institute of the University of Zürich has acquired a very high reputation amongst anthropologists. The success of Zürich as a centre of anthropological research and teaching is due to Prof. Rudolf Martin who, these twenty years past, has gathered round him and trained a band of young men, who are now spreading abroad the reputation of the new Swiss school.

In the work under review, Prof. Martin gives a systematic account of twenty years of experience as an expert anthropologist, detailing his methods of measurement, his manner of making records and describing the principles on which his methods are based. His text-book is much more than a technical manual; it is really an encyclopædia of knowledge relating to the size and shape of body in all races of mankind. There was great need for a standard work on physical anthropology; Prof. Martin has supplied that need.

The modern conception of the scope of physical anthropology and the relative importance attached to each of its branches will be made clear by a summary of the contents of Prof. Martin's text-book. The largest section is given to the skull; 422 pages out of a total of 1069 are devoted to the methods and results of craniology. The next important section is that which deals with the living body—its measurements, proportions, pigmentation, growth, etc.; to this subject considerably more than a third of the total book is assigned. A separate section is devoted to a consideration of the skeleton—189 pages. Thus, the major part of this work is devoted to the skull, skeleton, and external characters of the body.

The two opening sections, although condensed—amounting altogether to 102 pages—are both useful and important. These opening sections deal with anthropological methods, particularly with the best means of expressing results in graphic and in mathematical forms. The classi-

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fication of human races, the relationship of man to other mammalian forms, and the origin and progress of anthropological knowledge are discussed briefly but yet at sufficient length to meet the needs of the average student. A. K.

MONOGRAPHS AND TEXT-BOOKS OF CHEMISTRY.

(1) *Nucleic Acids: their Chemical Properties and Physiological Conduct.* By Prof. .W. Jones. Pp. viii + 118. (Monographs on Biochemistry.) (London: Longmans, Green and Co., 1914.) Price 3*s.* 6*d.* net.

(2) *The Simpler Natural Bases.* By Prof. G. Barger. Pp. viii + 215. (Monographs on Biochemistry.) (London: Longmans, Green and Co., 1914.) Price 6*s.* net.

(3) *The Chemistry of the Radio-Elements.* By Prof. F. Soddy. Second edition. Part i. (London: Longmans, Green and Co., 1914.) Price 4*s.* net.

(4) *Encyclopédie de Science Chimique Appliquée.* Tome v., "Principes d'Analyse et de Synthèse en Chimie organique." By M. Hanriot, Prof. P. Carré, and others. Pp. 795. (Paris et Liège: Ch. Béranger, 1914.)

(5) *The Principles of Inorganic Chemistry.* By W. Ostwald. Translated with the author's sanction by Prof. A. Findlay. Fourth edition. Pp. xxxiii + 836. (London: Macmillan and Co., Ltd., 1914.) Price 18*s.* net.

(6) *The Chemistry of Cyanogen Compounds and their Manufacture and Estimation.* By H. E. Williams. Pp. viii + 423. (London: J. and A. Churchill, 1915.) Price 10*s.* 6*d.* net.

(7) *Advanced Inorganic Chemistry.* By P. W. Oscroft. Pp. viii + 504. (London: G. Bell and Sons, Ltd., 1915.) Price 5*s.* net.

(8) *Preparations and Exercises in Inorganic Chemistry.* By W. Lowson. Pp. vii + 128. (London: Methuen and Co., Ltd., 1914.) Price 2*s.* 6*d.*

(9) *A Manual of Chemistry: Theoretical and Practical, Inorganic and Organic.* Adapted to the requirements of students of medicine. By Dr. A. P. Luff and H. C. H. Candy. Pp. xix + 660. Fifth edition. (London: Cassell and Co., Ltd., 1915.) Price 8*s.* 6*d.* net.

(1) and (2) THE subject of biochemistry, like many other branches of knowledge, has already extended to dimensions which effectively prevent any one author from doing justice to more than a part of the subject. Under these conditions it has been usual to witness the production of a text-book in which a general editor has distributed the work amongst a number of colleagues. The two monographs now under review are excellent examples of a better method of treatment. The publication of a series of smaller monographs provides just that flexibility which is required by a rapidly-growing subject; topics which are not yet ripe for description in a text-book can be held over to await further development, whilst individual sections can be revised and brought up to date without rendering obsolete a whole edition of many volumes.

Prof. Jones's monograph on the "Nucleic Acids" provides a fascinating story both for chemists and for physiologists, and affords a revelation of the amount of definite knowledge that is now coming into existence in reference to the chemical composition of plant and animal bodies.

It is very interesting to watch what materials are used in nature for the building up of living tissues. In the present case one of the most important sugars has been proved to be *d*-ribose (hitherto not known to chemists), whilst the bases belong to the pyrimidine series or are related to uric acid; the formula for the last substance is written in an unfamiliar form, with a hexagonal nucleus, which suggests a real analogy with the bases of the indol and skatol series. The inclusion of a bibliography covering sixteen pages of text will show how extensive is the literature on which this compact volume is based.

Prof. Barger's monograph covers a more extensive field, and is based on a bibliography which extends over 44 pages of text. These simpler bases are related in some ways to the alkaloids. They are distributed much more widely, but must be extracted by different methods. For this reason they were not recognised until a much later date; but, once identified, they are often capable of synthetical preparation on a large scale. Few things, in the recent growth of biochemistry, are more remarkable than the proof that has been given of the simple chemical character of many substances of intense physiological activity. The most striking case is that of adrenaline, but there is reason to believe that other internal secretions owe their activity to bases of comparatively small molecular weight. If this should be the case, the study of these bases may prove to be of even greater importance than that of the amino-acids which bulk so largely in the structure of the proteins.

(3) The appearance of a second edition of Prof. Soddy's monograph on the radio-elements is an indication of the rapid growth of the subject with which it deals. Many new members have been added to the disintegration-series, but there is reason to think that something approaching completeness has now been attained, and that further study will be devoted mainly towards an increased

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